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EXAMINER

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/823,355
Filing Date: April 12, 2004
Appellant(s): MARTINSON ET AL.

Peter Peterson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/11/2007 appealing from the Office action mailed 7/25/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-11 and 13-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chung et al (US Patent No. 6,171,453).

With respect to claims 1, 14 and 20, Chung et al discloses “an alignment shielding ring for use in a vapor deposition chamber” (col. 6, lines 4-5) that can be “used in a sputter chamber to shield alignment marks or any other marks provided on the edge of a wafer from sputtered metal particles” (col. 6, lines 17-20), with the chamber (figs. 6A and 6B, [80]) having a movable pedestal (fig. 6A, [76]) surrounded by chamber interior lower, side and upper walls. The target is shown in the prior art (fig. 1, [20]) as being above the substrate and therefore, would be above the wafer (fig. 6A, [26]) and present in the upper portion of the deposition chamber (figs. 6A and 6B, [80]). As depicted in figs. 6A and 6B, the pedestal shielding ring [84] is attached to the pedestal [82], with a pedestal elevator [76] capable of raising and lowering the pedestal (col. 6, lines 45-49). The pedestal shield surrounds and extends outward from the pedestal (fig. 7; figs. 6A and 6B, [84]). The upper chamber shield (figs. 6A and 6B, [46]) extends downward from an upper portion, with a lower end extending inward towards and adjacent to the pedestal shield [84] when the pedestal is raised and the lower end above the pedestal when the pedestal is lowered, with the lower chamber shield (figs. 6A and 6B, [48]) also helping to prevent sputtered material from reaching the bottom.

With regard to loading the wafer horizontally, the reference fails to explicitly state how the wafer is loaded. It is either inherent or obvious in the design to remove part [48] via the connector pin seen connecting part [48] and part [54] together. Removing part [48] in fig. 6A would leave sufficient distance to load the wafer horizontally (col. 6, lines 49-51) onto the pedestal.

With respect to claims 2 and 3, Chung et al further discloses that in figs. 6A and 6B the upper clamp shield [46] and lower clamp shield [48] work cooperatively with the pedestal shielding ring [84] to prevent sputtered target material from reaching the sidewalls and bottom when the pedestal is raised (fig. 6B). The sidewall shield [48] is depicted in fig. 6B as being below and outward of the pedestal upper surface.

With respect to claims 4 and 15, Chung et al further discloses in figs. 6A and 6B a shielding ring [84] which surrounds the upper portion of the pedestal ([82]; fig. 7), and a lower portion on the outer portion of the pedestal that extends downward to the chamber lower wall.

With respect to claims 5 and 16, Chung et al further discloses in fig. 6A a shielding ring [84] surrounding the pedestal and has a lower portion that extends downward to the chamber lower wall. Chung et al also depicts that there is an outward portion extending away from this lower portion [48]. Chung et al further depicts a sidewall shield [48] that has a lower end disposed below and outward of the pedestal shield upper portion and inward of the pedestal shield outward portion when the pedestal is raised.

With respect to claims 6 and 17, Chung et al further depicts fig. 6A having a shielding ring [84] with an upper portion surrounding the pedestal and a lower portion pointing downward. The lower chamber shield [48] is adjacent to the shielding ring, having an upward portion that extends outward. Fig. 6B shows a sidewall shield [46] that has a lower end disposed outward of the upper portion of the pedestal shield and inward of the pedestal shield outward portion [48]. The sidewall shield (fig. 6B, [46]) has an outward portion between the chamber sidewall and the sidewall shield lower end disposed outward of the pedestal shield outward portion when the pedestal shield is raised.

With respect to claims 7 and 18, Chung et al further depicts fig. 6A having a shielding ring [84] with an upper portion surrounding the pedestal and a lower portion pointing downward. The lower chamber shield [48] is adjacent to the shielding ring, having an outward portion that extends upward. At a raised position, the lower chamber shield [48] becomes the sidewall shield, with a lower end disposed below the pedestal and outward of the pedestal, and an upward portion that is inward of the pedestal shield outward portion when the pedestal is raised (fig. 6B).

With respect to claims 8 and 19, Chung et al further depicts an outward portion of the sidewall shield [48] that is between the chamber wall and the lower end of the sidewall shield which is outward of the pedestal shield outward portion [84] when the pedestal is raised (fig. 6B).

With respect to claim 9, Chung et al further depicts a sidewall shield [46] with a lower end disposed above the pedestal shield [84] when the pedestal is raised (fig. 6B)

and the pedestal shield extends outward from the pedestal [82] toward the chamber sidewalls and below the sidewall shield lower end.

With respect to claim 10, Chung et al further depicts a pedestal shield [84] with an upper portion surrounding the pedestal (fig. 7) and a lower portion extending downward toward the chamber wall, and the sidewall shield [48] has an extension to the lower end extending downward below the pedestal shield lower portion, and an inward portion extending upward from the extension, and wherein the pedestal shield lower portion is between the sidewall shield lower end extension and sidewall shield inward portion (figs. 6A and 6B).

With respect to claim 11, Chung et al further depicts a pedestal shield (fig. 6A, [84]) with an upper portion surrounding the pedestal and a lower portion extending downward toward the chamber wall and further including a bottom wall shield (fig. 6A, [48]) having a lower portion extending along the chamber lower wall, and inward and outward portions extending upward from the bottom shield lower portion. The bottom wall shield inward portion extends inward of the platform (i.e. pedestal) shield lower portion and the bottom wall shield outward portion extending outward of the platform (i.e. pedestal) shield lower portion.

With respect to claim 13, Chung et al further depicts in figs. 6A and 6B that the sidewall shields [46], [48] are adapted to avoid contact with the pedestal in both raised and lowered positions.

(10) Response to Argument

On pages 12 and 13 of the Appellant's Remarks, Appellant argues that the Chung et al depicts pedestal shielding ring [84] and lower chamber shield [48] as not cooperating unless the pedestal is in the lowered position (fig. 6A). The Appellant respectfully notes that this cooperation when the pedestal is in a raised position is an integral part of the claimed invention.

The Examiner respectfully disagrees with Appellant's arguments because in the raised position (fig. 6B), the pedestal shielding ring [84] and the lower chamber shield [48] are still functioning in a cooperative manner despite not being in near contact with one another (fig. 6A) since the two parts are simultaneously blocking unwanted deposition particles from reaching the walls and the floor of the deposition chamber. In addition, cooperation of the shielding ring [84] and lower chamber shield [48] does not require contact, as implied by Appellant's arguments, since these two parts function simultaneously for blocking particles regardless of being in a raised or lowered position.

On pages 13 and 14 of the Appellant's Remarks, Appellant argues that the sidewall shield [46] and lower chamber shield [48] are distinct, however the Examiner has stated that both part [46] and part [48] are sidewall shields, thus the Examiner is not allowed to interpret in this manner.

The Examiner respectfully disagrees. According to figs. 6A and 6B of Chung et al, an upper clamp shield (i.e. sidewall shield) [46] and lower chamber shield [48] are depicted, with both parts [46] and [48] covering (i.e. protecting) a sidewall portion. Therefore, both parts [46] and [48] are considered sidewall shields. For clarification

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purposes, part [46] is classified as an upper sidewall shield and part [48] is classified as a lower sidewall shield.

On pages 14 and 15 of the Appellant's Remarks, Appellant argues that sidewall shield [48] cannot correspond to both a sidewall shield and a bottom wall (i.e. floor) shield. In addition, the sidewall shield [48] does not extend along the chamber lower wall (i.e. floor).

The Examiner respectfully disagrees. According to the figs. 6A and 6B of Chung et al, sidewall shield [48] extends downward along a sidewall until reaching a 90° angle, at which point said sidewall shield [48] extends along a chamber floor (i.e. bottom wall). Thus, sidewall shield [48] is both a sidewall shield and bottom wall shield. Furthermore, sidewall shield [48] is depicted in figs. 6A and 6B as extending along the chamber floor for a distance.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/M. B./

Examiner, Art Unit 1795

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Conferees:

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795

/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700